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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/017,213 | 12/14/2001 | Scott R. Smith | S13.12-0111 | 1208 |

26181 7590 07/14/2005

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| EXAMINER |
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MANTIS MERCADER, ELENI M

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| ART UNIT | PAPER NUMBER |
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3737

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/017,213

Applicant(s)

SMITH, SCOTT R.

Examiner

Eleni Mantis Mercader

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-18, 20-24, 26-45, 47-60, 62-69 and 71-85 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-18, 20-24, 26-45, 47-60, 62-69 and 71-85 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/27/2005 has been entered.

Response to Arguments

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The previously stated Official Notice regarding an rf antenna being capable of both imaging of internal structures and of ablation is now admitted of record as it has not been subsequently challenged. Furthermore, the newly added reference of Truwit et al.'705 is used to address the newly added limitation regarding the two internal antennas being used.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 3737

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7,9-18,20-24,26-45,47-60,62-69 and 71-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumoulin et al.'896 in view of Minkoff'461 (PCT), Halperin et al.'176, all of record in view of Truwit et al.'705 (US Patent No. 5,964,705).

Dumoulin et al.'896 teach all the features of the instant invention including a tracking NMR coil for providing positional information of the surgical catheter of interest and which also delivers RF current to treat the area of interest, while the MRI system acquires image data of the area of interest which depicts on the MRI image the location of the tracking coil (see claim 1 of Dumoulin et al.'896).

Dumoulin et al.'896 does not teach the use of the tracking NMR coil which provides a first image of the patient's internal area of interest used to enhance the acquired MRI image as acquired by the MRI system, and providing this enhanced image by combining the internal with the externally derived MRI image.

In the same field of endeavor, Minkoff'461 (PCT) teaches the use of an internally derived image of the proximate area of interest near the catheter being combinable with an externally derived MRI image in order to combine the two and provide an enhanced image (see abstract and see in page 5, lines 22-31).

It would have been obvious to one skilled in the art at the time that the invention was made to have modified Dumoulin et al.'896 and incorporated the teaching of Minkoff'461 (PCT), by using the internal tracking coil to obtain an image of the internal area of interest wherein the operation of interest occurs, such as a procedure of recanalization, and combine that image with the externally derived image in order to increase the S/N ratio of the MRI image by

Art Unit: 3737

combining the internal and externally derived images as taught by Minkoff⁴⁶¹ (PCT) (see for motivation to combine page 5, lines 29-31). It is well known to skilled artisans that rf coils can perform all three functions of ablation, imaging and tracking. See Halperin et al.¹⁷⁶ which clearly states that the rf antenna can be used for internal imaging and ablation (see col. 4, lines 1-21) meaning that an rf antenna is capable of both imaging of internal structures and of ablation.

Dumoulin et al.⁸⁹⁶, Minkoff⁴⁶¹ and Halperin et al.¹⁷⁶ do not explicitly teach using multiple internal antennas. In the same field of endeavor, Truwit et al.⁷⁰⁵ teaches the use of multiple or plural antennas in order to get improved field strength and uniformity in order to better observe the efficacy of treatment (see col. 6, lines 25-53).

It would have been obvious to one skilled in the art at the time that the invention was made to have modified Dumoulin et al.⁸⁹⁶, Minkoff⁴⁶¹ and Halperin et al.¹⁷⁶ and incorporated the teaching of Truwit et al.⁷⁰⁵ in incorporating multiple antennas in order to get a better image and therefore better observe the efficacy of treatment.

Art Unit: 3737

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eleni Mantis Mercader whose telephone number is (571) 272-4740. The examiner can normally be reached on Mon. - Fri., 8:00 a.m.-6:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eleni Mantis Mercader
Primary Examiner
Art Unit 3737

EMM